May 31, 2001

Ms. Donna Wieting, Chief
Marine Mammal Conservation Division
Office of Protected Resources
National Marine Fisheries Service
1315 East-West Highway
Silver Spring, MD 20910-3226

Re: Request for Comments on Proposed Rule Authorizing Small Take of Marine Mammals Incidental to Navy Operation of Surveillance Towed Array Sensor System (SURTASS) Low Frequency Active (LFA) Sonar

Dear Ms. Wieting:

Defenders of Wildlife is a national nonprofit organization dedicated to the protection of wildlife in its native habitat. As an important element of our mission, Defenders works to preserve the health and diversity of marine ecosystems, and to safeguard the ocean's extraordinary biological resources against major conservation threats.

On March 19, 2001, the National Marine Fisheries Service (NMFS) published a proposed rule authorizing the Navy to "take" marine mammals incidental to its operation of the Surveillance Towed Array Sensor System–Low Frequency Active (SURTASS LFA) sonar system. SURTASS LFA is a high-intensity, global sonar system, which operates at noise levels billions of times more intense than levels known to disturb large whales. It poses substantial risks to numerous marine species, including species protected by the Marine Mammal Protection Act (MMPA). Notwithstanding these threats, NMFS intends to approve the operation of LFA sonar on the basis of a deficient environmental impact statement (EIS) in which the Navy draws scientifically unjustified conclusions from inadequate data, ignores relevant information that contradicts its desired conclusion, and grossly understates the potential for harm to marine life.

On behalf of Defenders and our more than 425,000 members and supporters nationwide, we are writing to express our strong opposition to the Navy's deployment of SURTASS LFA sonar. As explained below, NMFS cannot, consistent with the MMPA, grant the Navy a small take authorization for the operation of this LFA sonar.

Defenders also delivered oral statements at hearings held in Los Angeles, California on April 26, 2001, and in Silver Spring, Maryland on May 3, 2001. We hereby incorporate those statements in full.

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I. Introduction: the Marine Mammal Protection Act

Recognizing the danger to marine mammals of "depletion or extinction" resulting from human activities, Congress enacted the MMPA in 1972 to ensure protection of these species at healthy population levels. The linchpin of the MMPA is its "take" provision, which generally prohibits the harassing, hunting, capturing, or killing of marine mammals. As reflected in this broad prohibition, the MMPA embodies a strong national priority of marine conservation. Accordingly, exemptions from the take prohibition are extremely limited. Because the Navy's application for a "small take" permit to operate LFA sonar does not satisfy the clear legal requirements set forth in the MMPA, NMFS has no choice but to deny the Navy's request.

II. NMFS Cannot Authorize a Small Take Exemption for SURTASS LFA Because the Navy's Application Does Not Satisfy the MMPA's Threshold Eligibility Criteria.

Section 101(a)(5)(A) authorizes NMFS to grant an exemption for the incidental take of "small numbers of marine mammals" in the course of activity "within a specified geographic region." The Navy's SURTASS LFA program does not fall within these threshold eligibility criteria; thus, the program is not eligible for the exemption that the Navy seeks.

A. LFA Sonar Deployment Will Not Be Confined to a Specified Geographic Region

In enacting the small take provision of the MMPA, Congress clearly envisioned a limited exemption that would be available in only narrow circumstances. Indeed, the legislative history for the provision states that "[i]t is the intention of the Committee that both the specified activity and the specified region ... be narrowly identified." (H. Rept 97-228, Sept. 16, 1981, p. 19.) However, NMFS now proposes to turn that vision on its head by authorizing the Navy's deployment of LFA sonar on a worldwide scope, limited only by a coastal exclusion zone and a few specified "offshore biologically important areas." NMFS's suggestion that the designation of "operating regions" for LFA deployment fulfills the MMPA's geographic scope limitation is simply untenable: whereas the MMPA's legislative history specifically cautions that "it would be inappropriate to identify the entire Pacific coast of the North American Continent as a specified geographic region," (Id. at 19.) many of the regions identified by NMFS and the Navy go even further than that, encompassing entire ocean basins.

The ill-fit between these "regions" and the Congressional intent underlying the act is evident in an examination of the "Central Pacific Region" defined by the proposed rule. This region extends from 5° South latitude to 42° North latitude. Not only does it cover most of the Pacific coast of North America (which the legislative history expressly identifies as inappropriate), it also includes the entire Pacific coast of Central America, and a substantial portion of the South American coast. In all, this region spans nearly 50 degrees in latitude, encompassing equatorial, tropical and temperate seas in which average surface temperatures can differ by up to 40°

Fahrenheit. Far from sharing "similar characteristics, ...biological or otherwise," the waters of this region are marked by dramatic differences in resident and transient biota, and in physical characteristics that may affect the propogation of sound from one area to the next.

The more fundamental problem, however, lies in the fact that this technology will be deployed on a global–not a regional–basis. NMFS' proposal to prepare piecemeal Letters of Authorization does not change this fundamental truth. In the proposed rule, NMFS acknowledges that this world-wide authorization is wholly unprecedented but fails to explain why the departure from precedent is warranted. The fact that NMFS may previously have approved activities "in more than a single geographic region," is irrelevant to whether it is permitted, under the MMPA, to grant a programmatic "small-take" permit for a "specified geographic region" that includes almost the entire world. There is no reasonable interpretation of the statutory text under which such an authorization could be justified.

B. The Navy Has Not Demonstrated LFA Sonar Will Take Small Numbers of Marine Mammals

Similarly, the operation of LFA sonar is inconsistent with the intended scope of the MMPA's small take exemption because it threatens to take more than "small numbers of marine mammals." To sidestep this concern, NMFS attempts to hide behind the purported ambiguity in the MMPA's definition of "small numbers." Yet what the Navy proposes is clearly enormous: literally every marine species that inhabits offshore waters in an estimated 80 percent of the world's oceans would be potentially exposed to the harmful impacts of LFA sonar. Regardless of the precise definition of "small numbers," there is no plausible interpretation of the term under which the Navy's proposed activity could be eligible for a small take exemption.

In short, an interpretation of the MMPA under which an exemption is available for the worldwide deployment of technology with the potential to harm large numbers of marine mammals – i.e., an activity that is global in both scope and impact – strains the statutory language beyond recognition and renders the Act's threshold requirements meaningless. Thus, no rational interpretation of the MMPA supports the availability of a small take permit for the Navy's operation of its LFA sonar program, and NMFS must reject the Navy's request. To do otherwise would violate both the letter and the spirit of the MMPA.

III. NMFS Cannot Authorize a Small Take Exemption for the SURTASS LFA Program Because the Navy's Application Does Not Support a Finding of "Negligible Impact," as Required by the MMPA.

Even assuming the Navy's LFA sonar is eligible for a small take exemption, which it clearly is not, the program does not qualify for such an exemption under the criteria set forth in the MMPA. Specifically, under § 101(a)(5)(A) of the Act, NMFS can authorize the incidental taking of marine mammals only after finding that "the total of such taking ... will have a negligible impact on such species or stock." Yet as demonstrated unequivocally by the examples provided

below, there is simply no basis in law or science for NMFS to conclude that LFA sonar operation will have a "negligible impact" on marine mammals.

A. The Scientific Research Underlying the Application is Grossly Inadequate

The Navy purports to base its finding that LFA sonar will not significantly impact marine mammals on testing conducted in connection with its scientific research program. However, the research simply does not support the conclusion it is used to justify.

For one thing, due to the limited scope and timing of this testing, the Navy still has little to no understanding of: (1) long-term effects of LFA exposure on critical biological functions of marine mammals, such as mating, reproduction, feeding, and nursing; (2) potentially harmful reactions resulting from the physiological and psychological stresses associated with LFA exposure, including disruptions in vocalization and migration, heightened susceptibility to disease or predation, and inability to locate prey; or (3) almost any other behavioral or long-term responses to LFA exposure.

In addition, the scientific methodology underlying the Navy's research was fundamentally flawed. After exposing marine mammals to LFA sonar at well below the full source levels of deployment, the Navy – without any scientific justification – extrapolated the results to "predict" that it could safely expose marine mammals to levels thousands of times more intense. The Navy further ignored the fact that, even at the significantly lower exposure levels of its tests, negative effects were documented, including changes in migration routes, avoidance behavior, and decreased vocalization.

Given the Navy's unjustified extrapolations from limited exposure data, combined with its total failure to account for potentially significant long-term effects and non-acoustic responses, NMFS cannot rationally find that deployment of LFA sonar will have a negligible impact on marine mammals.

B. The Navy's Application Fails to Address the Full Range of Relevant Effects.

The Navy is seeking to deploy its LFA sonar without considering the full spectrum of relevant impacts on the marine environment, thus grossly understating the potential for harassment, injury, and killing of marine mammals by this technology.

For example, the Navy's analysis of marine mammal responses to LFA sonar exposure focuses so exclusively on auditory effects – primarily permanent threshold shifts – that it completely discounts the potential for severe impacts not related to frequency-sensitive hearing. In particular, resonance phenomena in whales' air cavities, which cause damage to delicate brain and ear tissues, can inflict injury at frequencies to which creatures are not acoustically sensitive. The Navy's total failure to address such impacts is especially glaring in light of the strong

evidence that resonance effects were responsible for the whale deaths and injuries observed during the March 2000 stranding episode in the Bahamas.

Likewise, the Navy dismisses behavioral effects, which can occur at levels well below the 180 dB "safe" level, as temporary and thus biologically insignificant. This view, however, is neither justified by the Navy's limited studies nor scientifically defensible. To the contrary, behavioral effects – for example, disruptions in mating, migration, or vocalization resulting from the stress of LFA exposure – can cause critical and lasting harm to marine mammal populations.

Another category of impacts that is not adequately addressed in the Navy's analysis is the effect of LFA sonar on non-mammal marine species. Although these creatures themselves are not directly protected under the MMPA, their responses to sonar signals – for instance, potential changes in the distribution or abundance of important food sources such as fish and zooplankton – could have significant indirect effects on mammal species.

In addition to overlooking particular categories of impacts such as those described above, the Navy also fails to adequately consider cumulative impacts to marine mammals from deployment of LFA sonar. The Navy does not sufficiently explore the aggregate and synergistic effects resulting from the interaction of its LFA sonar technology with other LFA sonars, as well as the numerous other sources of noise that bombard our oceans. Similarly, the Navy does not adequately deal with the exposure of marine mammals to repeated LFA sonar signals, which could increase and intensify the resulting impacts.

Due consideration of resonance phenomena, behavioral responses, indirect effects, and cumulative impacts, among other factors ignored by the Navy, could increase, by many orders of magnitude, the scope of the area affected by given LFA sonar events. Because these effects were either not considered at all or entirely glossed over in the Navy's analysis and are potentially severe – ranging from disruption of crucial biological functions to serious injury and even death – there is no sound basis for NMFS to conclude that LFA sonar has only a "negligible impact" on marine mammals.

C. The Navy's Designation of 180 dB Zone of Influence is Arbitrary and Capricious

The Navy's unjustified and unsubstantiated selection of the 180 dB received level as the "safe exposure" threshold for "non-serious injury" casts serious doubt on its entire analysis, and particularly on its conclusion that LFA sonar will not harm marine mammals. The Navy relies on this 180 dB criterion to essentially dismiss the threat of anything other than immediate auditory impacts, thus inadequately accounting for long-term, resonance, behavioral, and other potentially severe effects. In addition, the Navy uses the sound field defined by the 180 dB received level to significantly limit the scope of mitigation required for all impacts on marine mammals.

Yet the 180 dB exposure threshold has no valid scientific basis. In fact, evidence suggests the potential for serious physical and behavioral effects at exposure levels below 180 dB, and widely accepted research demonstrates biological disturbances at far lower levels (115-120 dB). Moreover, evidence surrounding the March 2000 Bahamas stranding suggests that those whales experienced severe negative impacts, including serious injury and death, as a result of exposure to noise levels well below 180 db. Thus, in adopting the 180 dB criterion, the Navy selectively and misleadingly cited to very limited research, while simultaneously ignoring compelling evidence of the need to consider and mitigate for impacts at lower exposure levels.

If the Navy's 180 dB level is off by even a small amount – which the evidence strongly suggests is the case – then the Navy has vastly underestimated the extent of LFA sonar's impact and, as a corollary, has also prescribed grossly inadequate mitigation. This fatal defect in the Navy's analysis clearly precludes NMFS from finding that the Navy's LFA program will have only negligible impacts on marine mammals.

D. The Navy Has Failed to Justify its Reliance on Proposed Mitigation Measures

Notwithstanding the potential for severe and widespread impacts resulting from the operation of LFA sonar, the Navy uses an inadequate and untested mitigation program to discount the risk of harm to marine mammals. As an initial matter, the Navy's mitigation program is fundamentally flawed because it only applies within the 1 km radius defined by the 180 dB sound field. As discussed above, this extremely limited and misleading definition of the scope of impact of LFA sonar fails to capture many potentially devastating effects on marine mammals, including non-auditory effects as well as auditory effects occurring below 180 dB. Moreover, the specific measures on which the Navy relies – visual observation, passive acoustic detection, and active acoustic monitoring – are entirely inadequate to mitigate for the potential harm.

The manifest inadequacy of the visual observation component of the mitigation program is a case in point. Even assuming visual observation were undertaken in good weather, with high visibility and perfectly calm seas–assumptions that will rarely hold in real-world operating conditions–the sheer size of the area to be monitored would make reliable visual observation virtually impossible. A pair of 7x50 binoculars meeting or exceeding Navy design specifications may have a field of view of 7.5 arc seconds, or roughly 130 meters at 1 kilometer's distance. Applying the formula for the area of a circle ($a=\pi r^2$), the total area visible through the binoculars at any given moment at this distance will be approximately 13,273 m^2. By contrast, the total surface area within the 1 kilometer monitoring zone is roughly 3,141,593 m^2. Thus, only .004% (less than one half of one percent) of the total surface area within the monitoring zone defined by the Navy will be visible through the binoculars at any given moment. An observer could thus devote roughly 1 second out of every 4 minutes to each 13,273 m^2 of surface area within that

zone.[1] During that 1 second, the observer would be required to identify marine mammals as small as 1.5 meters–and often the same color as the surrounding waters–that may surface only briefly between lengthy underwater dives. Under such circumstances, there is a very substantial likelihood that marine mammals could be present in the monitoring zone–and exposed to LFA at intensities greater than 180dB–for long periods without being observed. In view of its heavy reliance on visual observation as a key mitigation measure, the Navy's Final EIS offers little explanation of how its system will deal with such shortcomings.

Likewise, the active acoustic technology proposed by the Navy has a limited scope of coverage and is essentially untested. Because the Navy's program inadequately mitigates for a huge range of potential effects, NMFS cannot simply adopt this program and then rely on it to find that LFA sonar will have negligible impacts on marine mammals.

E. The Application Fails to Address Significant Data Gaps and Scientific Uncertainties

One of the most disturbing flaws in the Navy's analysis of impacts on marine mammals is its failure to account, in any meaningful way, for the significant questions that still remain regarding the impacts of noise on marine species. Throughout its application and the supporting EIS, the Navy brushes aside important gaps in the existing data, glosses over major areas of scientific uncertainty, and overstates the findings from its own limited research in order to create the very misleading impression that its analysis is conservative and its conclusions well-supported. In the face of this obvious and over-arching flaw in the Navy's analysis, combined with its obligation under the MMPA to make a finding of negligible impacts, NMFS cannot simply accept the Navy's conclusion that LFA sonar is safe for marine mammals.

IV Conclusion

In Defenders' view, the evidence clearly demonstrates that the deployment of LFA sonar would have far more than negligible impacts on marine mammals. At the very least, however, the evidence demonstrates without question that there are insufficient grounds, either legal or scientific, for NMFS to conclude that impacts to marine mammals will be only negligible. Given that the effects of LFA sonar are uncertain at best and catastrophic at worst, NMFS cannot, consistent with the MMPA, grant a small take permit for LFA sonar operation.

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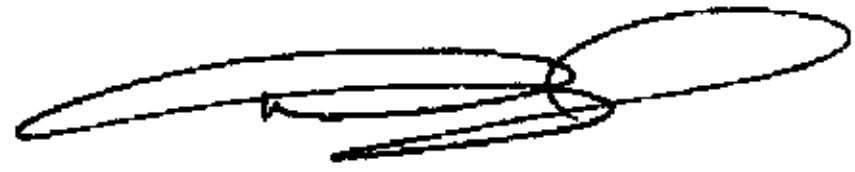
[1]In fact, this figure substantially overstates the degree of coverage because the field of view decreases rapidly as you approach the ship–for example, at 500 meters the total area viewable at one time is only 3364 m^2, and at 100 meters it is only 133 m^2.

Thank you for considering Defenders' comments on this important issue.

Sincerely,



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